

In the claims:

In claim 1, line 1, delete "the".

## REMARKS

Claims 1 - 21 remain active in this application. The specification and claims have been reviewed and minor editorial revisions made where seen to be appropriate and in response to the Examiner's criticisms. No new matter has been introduced into the application.

The objections by the Chief Draftsman to the informal drawings originally submitted have been duly noted. Correction will be made when formal drawings are submitted. Therefore, it is respectfully requested that requirement for correction be held in abeyance until submission of formal drawings is required.

The Examiner has objected to the specification as containing blanks on page 1 and requiring correction. This objection and requirement are respectfully traversed. No blank spaces appear in the text of page 1 of the copy of the application in the file of the undersigned and it is believed that the objection and requirement are in error. If blank spaces are present in the official file copy of the application, it is requested that the Examiner identify the information with more specificity or provide a copy of the page. In the interest of completeness of this response, however, it is noted for the record that this application is a continuation-in-part of co-pending application Serial No. 00/060, 026, filed April 14, 1998, and corresponding amendment of page 1 is requested if the page does not already so state. Accordingly, it is respectfully submitted that the foregoing is a full and complete response to this objection and requirement and reconsideration and

withdrawal thereof is requested.

Claim 1 has been rejected under 35 U.S.C. §112, second paragraph, as being indefinite; the Examiner asserting "the authenticity" does not have a corresponding language antecedent. This rejection is respectfully traversed, particularly as being moot in view of the amendment made above.

Specifically, while the word "the" has been deleted to expedite the prosecution and render the rejection moot, it is well-established policy of the USPTO that the word "the" does not always require antecedent language, particularly where an inherent quality or parameter is recited, such as "the length of a line", "the radius of a circle", "the atomic weight of an element", "the presence of a signal" and the like.

Further, it is also well-established policy of the USPTO, as enunciated in the MPEP that a claim should not be rejected as indefinite where the scope of the claim can be reasonably determined and that a rejection should never be made based on the Examiner's preference for terminology. It is respectfully submitted that no ambiguity or indefiniteness is engendered by the language of the claim as originally filed and that the scope of the claim is abundantly clear. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Before proceeding to a discussion of the numerous rejections based on prior art, it is respectfully pointed out that the basis for several of the rejections is unclear from the Examiner's statement thereof. For example, while claims 1, 5 - 6, 8 - 10 and 15 are rejected under 35 U.S.C. §103 as being unpatentable over Storch, Deo and Chew, it appears that claims 2 - 3 and 11 - 12 are rejected on the same basis but in separate rejections or statements which do not explicitly state the references relied upon.

That is, the rejection of claims 2 and 3 is discussed in connection with a rejection which does not enumerate those claims and claims 11 and 12 are discussed on page 5 of the action in regard to interpretations which seek to indicate applicability of the rejection applied to claim 1. Further, while claims 4, 7, 13 and 14 are rejected on the basis of a different combination of references (but including the common references of Storch and Deo, Claims 16 - 21 are rejected based on a general reference to the rationale for the rejection of claims 1 - 15, which potentially includes five separate grounds of rejection without any specific application of any specific, identifiable teachings of documents cited or of record. Therefore, it is respectfully submitted that the rejections of claims 2 - 3, 11 - 12 and, especially 16 - 21 are *prima facie* improper and do not provide a proper basis for a response, much less supporting a conclusion of obviousness based on identified evidence of the level of ordinary skill in the art.

Accordingly, claims 1, 5 - 6, 8 - 10 and 15 and, apparently, claims 2 - 3, 11 - 12 and 15 - 21 have been rejected under 35 U.S.C. §103 as being unpatentable over Storch et al. (hereinafter Storch) in view of Deo et al. (hereinafter Deo and Chew and claims 4, 7, 13 and 14 have been rejected under 35 U.S.C. §103 as being unpatentable over the same combination of Storch and Deo in view of Moh, Guillou et al., DiCesare et al. or Matyas et al, respectively (referred to hereinafter by the first named inventor). These five grounds of rejection are respectfully traversed. It is respectfully submitted that the statements of these rejections do not provide a *prima facie* demonstration of obviousness of any claim in the application and appear to ignore explicit recitations of the claims. Moreover, it appears that the Examiner's statements of the respective rejections are substantially a hindsight

construction of the claimed invention based on the claims and specification of the present application.

Specifically, the invention is directed to a system and method, each comprising a plurality of elements or operations and an organization thereof which overcomes severe drawbacks of prior systems not including those elements/functions and their organization to deliver authentication with varying degrees of certainty (appropriate to different types of goods and transactions) with improved resistance to attacks such as database corruption or saturation of communication lines. The invention thus provides a comprehensive system for reducing, if not eliminating the counterfeiting of goods which is more effective while less complicated than prior systems. Neither the increase of effectiveness nor the reduction of complexity and hardware requirements is remotely suggested by the prior art and the Examiner has not alleged that the prior art enables a realization or even an expectation of such effects.

By way of introduction, the prior art of record falls largely into three categories:

A.) Arrangements using special labels to detect and discourage counterfeiting such as by adding random data to or truncating serial numbers. Among the prior art applied against the claims, Storch and DiCesare are representative of such arrangements. Storch is discussed on pages 3 and 4 of the present disclosure and noted to require the maintenance of extensive databases and indicating having other problems associated therewith such as the requirement for a significant hardware infrastructure, expensive database maintenance, vulnerability to attacks on the database or infrastructure, consumer privacy issues and the like, all of which derive from the requirement for authentication through centrally or locally maintained record which must be accessed. DiCesare is directed to

the maintenance of a database with information of persons who can authenticate an item and maintain provenance or chain of title to an article. Thus DiCesare relies of a central or distributed database (of enhanced data storage function functions) and an extensive communication infrastructure.

B.) Arrangements using electronic tags such as smart cards or smart tokens. Deo and Chew are representative of this technology which provides increased difficulty and cost of duplicating or imitating the electronic tag, itself, such as by breaking any systematic allocation of serial or identifying numbers, which is advantageous in reducing counterfeiting. However, these systems and Deo and Chew, in particular, are principally directed to authentication or security of the electronic tag itself and the processing of local "value added" functions, respectively. Both continue to require a significant communications infrastructure and maintenance of a central or distributed database.

C.) Arrangement generally in regard to cryptography, zero-knowledge protocols and the like. Moh, Guillou, and Matyas are representative of these arrangements. Moh is directed to, *inter alia*, authenticating electronic communications using an automorphism algorithm for encryption and decryption. Guillou is directed to combining of public (but not private) key encryption with a zero-knowledge proof procedure for signature verification. Matyas is directed to enforcement of network security of a public key cryptographic network. None of these documents teach or suggest the simplification of the systems necessary to support the respective functions disclosed therein or in the context of authentication or simplification of the procedures employed to use such systems to obtain any desired degree of authentication desired much less improvement of resistance of the

systems to various forms of attack, corruption or misuse.

With specific reference to the rejections based on Storch, Deo and Chew, it is respectfully submitted the Storch, Deo and Chew taken separately or together, do not address the use of an encryption or decryption key in combination with an electronic tag including encrypted authentication information in combination with a reader equipped with a decryption key for reading information from the electronic tag to verify authenticity, particularly in connection with the recited encryption and decryption which supports and reinforces the protection provided by the difficulty in reproducing the electronic tag while avoiding of a need for maintenance and protection of a large central or distributed database and the infrastructure to access it or complications of particular cryptographic protocols and algorithms.

Accordingly, it is seen that the Examiner has not properly considered the entire recited combination but has effectively ignored both the system organization and the encryption/decryption function recited in the claims included in the rejection. Rather, the Examiner appears to have applied documents exemplary of two separate arts (categories A and B, above) by a hindsight construction based on the present disclosure and without a demonstration of motivation for modification or expectation of realizing the meritorious effects of the invention in the references relied upon. Therefore, it is respectfully requested that the rejections of claims 1 - 3, 4, 5, 6, 8 - 12 and 15 be reconsidered and withdrawn.

In regard to the rejection of claim 4 based on Storch, Deo and Moh, it was pointed out above that the Combination of Storch and Deo do not address the use of encryption or the use of electronic tags to authenticate anything other than the electronic tag,

itself. Moh, while directed to a particular form of encryption neither important to the invention nor relevant to the claimed subject matter, does not teach, suggest or lead to an expectation of the advantages provided by the invention in avoidance of problems associated with database maintenance and access.

More specifically, while Moh teaches encryption and decryption by public or private keys (compare Figures 1 and 2 as described in the last two paragraphs of column 2), Moh does not teach the use of public and private keys in combination as recited in claim 4 or supplement the teachings of Storch and Deo where they are deficient to answer the subject matter of claim 1. More importantly, however, the combination of Storch, Deo and Moh falls far short of supporting a demonstration that the claimed subject matter, supporting the meritorious effects of the invention was within the level of ordinary skill in the art for production of such results. Therefore reconsideration and withdrawal of the rejection of claim 4 is respectfully requested.

In regard to the rejection of claim 7 based on Storch, Deo and Guillou, it is respectfully submitted that while Guillou teaches authentication of a bank card with a technique involving zero knowledge proof techniques, it does not supplement Storch and Deo at the above-noted points of deficiency in their teachings or, in combination therewith, provide adequate support for a demonstration of obviousness of the claimed subject matter of claim 7, taken as a whole. Again, for such a demonstration, the content of the references relied on must lead to an expectation of success of modifications of disclosed arrangements to produce the advantages of the invention. Therefore reconsideration and withdrawal of the rejection of claim 7 is respectfully requested.

In regard to the rejection of claim 13 based on

Storch, Deo and DiCesare, it was pointed out above that DiCesare is similar to Storch and does not address encryption. While DiCesare teaches tracking of an ownership history, it effectively teaches away from the invention by requiring enhanced functions and data storage in a database. Therefore, the combination of teachings of Storch, Deo and DiCesare does not provide support for a demonstration of the obviousness of the claimed subject matter, taken as a whole, which allows avoidance of reliance on a centralized or distributed database for each authentication transaction..

In regard to the rejection of claim 14 based of Storch, Deo and Matyas, it is again noted that Storch and Deo do not answer the subject matter of claim 1, from which claim 14 depends and further respectfully submitted that Matyas does not supplement Storch and Deo at the point of their deficiency and, moreover, has little to do with the subject matter of claim 14. Matyas appears to be directed to an arrangement responsive to configuration vectors of data processors connected to a network and denies access to a private key in response to a public key if the configuration vector is changed or otherwise not as expected. This is performed, as described in the passages referenced by the Examiner, by erasure of a user's master key which renders the users public and private keys unrecoverable. In contrast, claim 14 explicitly recites that "authentication information is erased from said memory after being read" which supports tamper resistance of electronic tags and smart cards. Accordingly, no *prima facie* demonstration of obviousness has been or can be made of the subject matter of claim 14 based on Storch, Deo and Matyas. Accordingly reconsideration and withdrawal of the rejection of claim 14 is respectfully requested.

In summary, for each ground of rejection based upon prior art in the outstanding office action, it has

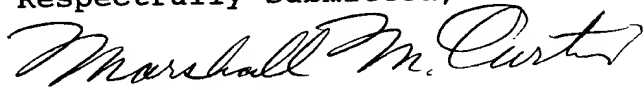
been demonstrated that the content of the references applied does not answer the subject matter of any claim, taken as a whole or lead to any expectation of success in overcoming of problems of systems such as that of Storch or any other reference of record. In this regard and in the interest of completeness of this response, it is respectfully submitted that, while the rejection of claims 16 - 21 has been addressed in connection with the rejection of claim 1, above, as referred to in the action, neither the combination of Storch, Deo and Chew nor any other combination of prior art appearing in the outstanding office action addresses the encryption of authentication information or routing information on an electronic tag and decrypting that information to authenticate an object associated with the electronic tag, as recited in claims 16 and 21.

Further, motivation for the combination of teachings can not be found in the references relied upon but only in the present disclosure. The statements of the various rejections do not address the realization of the meritorious effects of the invention but are substantially a hindsight construction of the claimed subject matter without regard thereto. Therefore, it is respectfully submitted that all rejections of record be reconsidered and withdrawn.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 50-0510 of International Business Machines Corporation (Yorktown).

Respectfully submitted,

A handwritten signature in cursive script, reading "Marshall M. Curtis".

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